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Ethnobotanical studies of medicinal plants in chopta-mandal forest of Garhwal Himalayas in Uttarakhand

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Abstract

Uttarakhand, in the Indian Himalaya, has a rich diversity of medicinal plants, which are widely used. Medicinal plants have played an important role of primary health care system among the local people of Himalayan region. However, information on the uses for plants for medicine is lacking from many interior areas of Himalaya. The study aimed to look into the diversity of plant resources that are used by local people for curing various ailments. Questionnaire surveys, participatory observations and field visits were planned to illicit information on the uses of various plants. The study came to document nearly 64 species of plants used as wild edibles. Analysis of taxonomic group of plants revealed that a total of 31 wild edible species used for medicinal purposes belongs to 27 genera and 23 families. Mostly leaves, roots, seeds, fruit, bark and whole plant are used to prepare medicine. Collection of wild medicinal plants is not the usual practice of all the villagers, only few knowledgeable people (Vaids), old people and others) who are able to identify collect them from the wild and store them for future use.

Keywords: Medicinal plants, traditional knowledge, ethno medicinal.

Introduction

The Garhwal Himalayas are very rich in natural resources and these forest resources play an important role in the livelihood of the local communities. The rich diversity of the area is utilized by the local inhabitants in various forms as medicine, food, fodder, fuel, timber, agricultural implements, etc.

Wild plants are gathered in the form of fruits, shoots, leaves, twigs, flowers, roots, tubers, stems, rhizomes etc. and these plants still share a good proportion of the tribal dishes world over (Anonymous, 1970-88; Duke and Atchley, 1986; Neog and Mohan, 1994; Samant and Dhar, 1997) [2, 3, 6, 7]. Traditionally these species have been meeting the protein, carbohydrate, fat, vitamin and mineral requirement of the local inhabitants to a greater extent (Sundriyal, 1999) [8].

Besides providing good source of nutrients available in different seasons of the year, these species also provide ecological security as they are disease resistant, grow in diverse climates and habitat and ensure sufficient production even in adverse conditions (Akpanyung *et al.*, 1995; Negi *et al.*, 1993; Wesche-Ebeling *et al.*, 1995) [1, 5, 9].

In the study area health services and other organized system of traditional medicine have not been provided to the greater extent as there are large numbers of the people which are short of skilled manpower and appropriate facilities.

Materials and Methods

1. Study Area

Kedarnath Wildlife Sanctuary (KWLS; 30° 25'-30° 45' N latitude, 78° 55'-79° 22' E longitude) is the one of the floristically rich and largest Protected Areas (PAs) in Uttarakhand covering an area of 975 km². It lies in the Northern catchments of Alaknanda, a major tributary of the river Ganges.

An intensive study area of around 100 km² was selected along the Southern fringe of Kedarnath WLS. Nearly 70% of the intensive study area lies in Mandal valley with in Alaknanda catchment. Upper part of the study area is marked by famous Hindu shrine Tungnath (3550m). The local inhabitants are settled in scattered villages along lower fringes (< 2200m) who are basically agro-pastoralists. The study area includes substantial areas of Makku Reserve Forest with the altitude ranging between 1,500-3,680 m. The area was selected as it has a wide altitudinal range, different habitat and vegetation types mainly dominated by the oaks, varied aspect and slope categories. Six villages *viz.*, Siroli, Mandal, Khalla, Koteshwar, Bandwara, Bairagana in Mandal valley and five villages *viz.*, Makku, Hudu, Daira,

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Kanda and Jagpura near Chopta were selected for the intensive study.

2. Methodology

The Present Survey was conducted in 11 villages of the study area covering the Chamoli and Rudraprayag district based on personal interviews among local people. The informers included responsible old persons; attempts were made to include females in interviews and middle aged people who were fully aware about their forest wealth. During the survey, information was gathered on the basis of prepared questionnaire viz., local name, parts used, methods of uses, medicinal uses etc Standard methods were followed for the collection of plant materials, mounting, preparation and preservation of plant species.

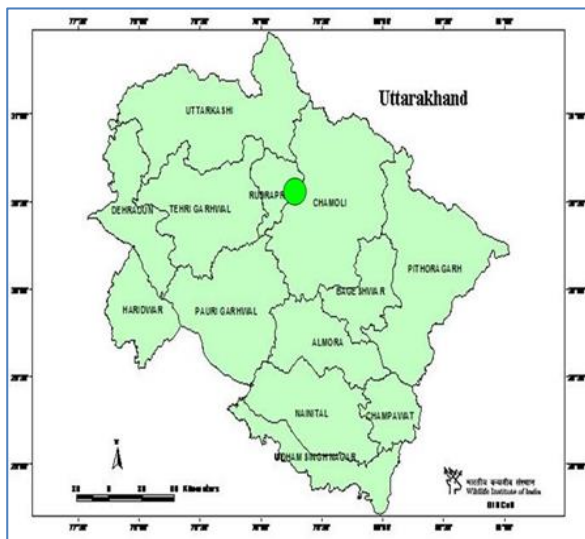


Fig 3.1B: Location map of Kedamath WLS in Uttarakhand state

Results

The study came to document nearly 64 species of plants used as wild edibles. Analysis of taxonomic group of plants revealed that a total of 31 wild edible species (table 1) used for medicinal purposes belongs to 27 genera and 23 families. On the other hand, the study showed that the species belonged to diversifies genera. In this regard, the genus *Berberis* is found to have 3 species followed by *Rhododendron* with 2 species. With respect to families, Rosaceae shared the largest proportion, i.e. consisted of 5 species, followed by Berberidaceae and Ericaceae with 3 and 2 species each. Total 31 wild edibles (table 1) plant species are used as medicinal and was recorded to be used frequently to treat gastro-intestinal problems such as dysentery, diarrhoea, gastric, abdominal pain and other disorder, indigestion and constipation etc., dermatological problems such as boils, scabies, burns, mumps, swelling, skin diseases and respiratory infections such as asthma, bronchitis cough/cold, sore throat etc.,

Analysis of habits of the 31 plants documented for medicinal used shows that herbs share the largest proportion with 12 species (39%), followed by Tree with 11 species (35%) and shrubs with 8 species (26%) (Figure 1).

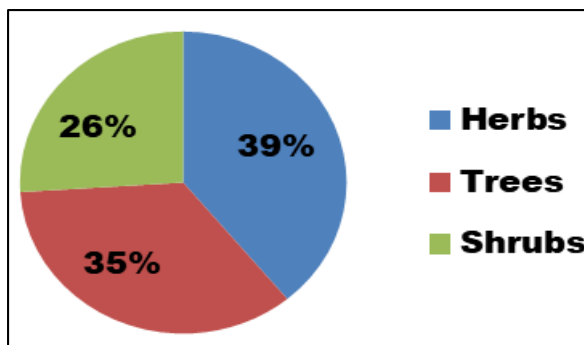


Fig 1: Habit wise distribution of WEP used for medicinal purpose

Among part used, most importantly roots are found to be frequently used part accounting for 26%, followed by leaves with 23%, flowers, tuber, whole plant, bark and seed with 6% respectively (figure 2).

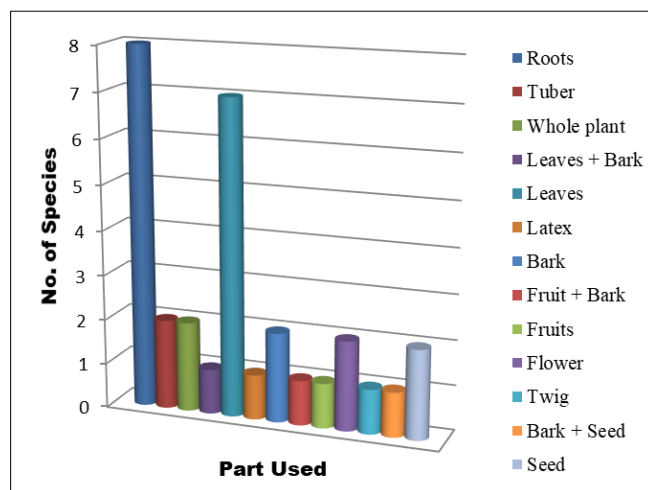


Fig 2: Part wise distribution of WEP used for medicinal purpose

Discussion and Conclusion

According to informers interviewed in the study, many medicinal plants have been disappearing or difficult to find most frequent from their nearby forests and they are required to walk increasing distances to collect plants that had earlier been readily available close to their villages. Traditional extractions pay special attention to avoid destructive harvesting to ensure survival and regeneration of plants, but most of the situation have been created by external collectors and younger generation having lack of such type of knowledge base.

Table 1: Wild edible plants used as medicine in study area

S. No.	Botanical Name	Local Name	Family	Part Used	Fl. & Fr.	Disease
1	<i>Angelica glauca</i> Edgew	Choru	Apiaceae	Roots	Aug - Oct	Food poisoning, dysentery
2	<i>Asparagus curillus</i> Buch.-Ham. ex Roxb.	Sharanoi	Asperagaceae	Tuber	Feb.-Oct.	Acne, boil, wound healing
3	<i>Berberis aristata</i> DC.	kingor	Berberidaceae	Roots	May-June	Eye disease
4	<i>B. asiatica</i> Roxb.	kingor	Berberidaceae	Roots	May-June	Eye disease, Stomach trouble
5	<i>B. lycium</i> Royle	kingor	Berberidaceae	Roots	May-June	Eye disease
6	<i>Bergenia ciliata</i> (Haw.) Sternb.	Pattarchoor	Saxifragaceae	Tuber	April-June	Urinary troubles
7	<i>Cannabis sativa</i> L.	Bhang	Cannabaceae	Aerial Part	July - Sept	Ringworm, analgesic, sedative
8	<i>Capsella bursa-pastoris</i> (L.) Medik.	Medik	Brassicaceae	Whole Plant	Feb-July	Diarrhea

9	<i>Centella asiatica</i> (L.) Urban	Brahmi	Apiaceae	Whole plant	Dec.- May	Boil
10	<i>Cinnamomum tamala</i> Nees	Tej-patta	Lauraceae	Leaves, Bark	April-Oct.	Cough, cold
11	<i>Diplazium esculentum</i> (Retz.) Sw.	Lingura	Athyraceae	Young Fronds	May - Sept	Constipation
12	<i>Ficus palmata</i> Forsk.	Pheru/bedu	Moraceae	Latex	May-Nov.	Bone fracture
13	<i>Grewia oppositifolia</i> DC.	Bhimal	Tiliaceae	Bark	Sept.- Nov.	Tooth brush/ teeth cleaner
14	<i>Juglans regia</i> L.	Akhrot	Juglandaceae	Twig, Leaves	April-Oct.	Stomach ache
15	<i>Myrica esculenta</i> Ham.	Kaphal	Myricaceae	Fruit, Bark	May - Oct	Stomach-ache
16	<i>Oxalis corniculata</i> L.	Salmudi, Khattimithi	Oxalidaceae	Leaves	Feb.- Nov.	Bone fracture, sprain
17	<i>Pinus roxburghii</i> Sargent	Chir	Pinaceae	Gum	Jan.-June	Boil
18	<i>Prinsepia utilis</i> Royle	Bhekkoi, Bhekkhal	Rosaceae	Root	April-Aug.	Injury, muscular pain
19	<i>Prunus cerasoides</i> D. Don	Phaja, Parya	Rosaceae	Bark	Apr - Dec	Dhobi itch, locally known as Katai.
20	<i>Pyrus pashia</i> D. Don	Mole	Rosaceae	Ripe fruits	Apr - May	Dysentery (with blood)
21	<i>Rhododendron arboreum</i> Smith.	Burans	Ericaceae	Flower	Mar.- Sept.	Headache
22	<i>Rhododendron anthopogon</i> D. Don	Burans	Ericaceae	Leaves	Mar.- Sept.	Wounds healing, throat infection
23	<i>Rubus niveus</i> Thunb.	Kaliachoi/ kali heesar	Rosaceae	Root, Leaves	May-June	Diarrhoea, throat ache, cough, fever
24	<i>Rubus ellipticus</i> Sm.	Heesar	Rosaceae	Tender shoots	May-June	Burn
25	<i>Rumex hastatus</i> D. Don	Almoda	Polygonaceae	Root	Oct.-May	Fever, cough
26	<i>Solanum nigrum</i> L.	Khalarkoi, Bhomolan	Solanaceae	Leaves	May-Oct.	Rabies
27	<i>Taraxacum officinale</i> Weber	Dudhla	Asteraceae	Root	May-June	Cough and cold
28	<i>Taxus wallichiana</i> Zucc.	Thuner	Taxaceae	Bark, Seed	Mar. - Nov.	Eczema
29	<i>Urtica ardens</i> Link.	Kushka	Urticaceae	Root	July-Nov.	Fever, cold
30	<i>Viola betonicifolia</i> var. <i>nepalensis</i> (Ging) Back.	Banafsa	Violaceae	Flower	Aug - Sept	Toothache, tooth brush
31	<i>Zanthoxylum armatum</i> , DC.	Timru, Timbur	Rutaceae	Twig, seed	April-Oct.	Dysentery, bronchitis

Dependency on traditional health care practices has decreased and was observed greater among elders, people living far from main road and having minimal income sources while several instances were recorded of people returning to seek the help of traditional healers when their illness was not cured by modern medicine.

Kala (2003) ^[4] who observed that the dependency of local people on medicinal plants has decreased over the past 10-15 years due to the easy availability of allopathic medicines and rapid socio-economic changes in this region. The younger generation now has a greater belief in allopathic medicine but still trusts in medicinal plants for curing certain diseases.

References

1. Akpanyung EO, Udoh AP, Akpan EJ. Chemical composition of the edible leaves of *Pterocarpus mildbreadii*. *Plant Foods Hum Nutr.* 1995; 43(3):209.
2. Anonymous. *The Wealth of India: Raw materials*, (New Delhi: Council of scientific and Industrial Research (Reprinted), 1970-1988, I-XI).
3. Duke JA, Atchley A. *Handbook of Proximate analysis tables of higher plants*. C. Press Inc., Boca Raton, Florida, 1986.
4. Kala CP. Commercial exploitation and conservation status of high value medicinal plants across the borderline of India and Nepal in Pithoragarh. *Indian Forester.* 2003; 129(1):80-84.
5. Negi KS, Tiwari JK, Gaur RD, Pant KC. Notes on Ethnobotany of five district of Garhwal Himalaya, U.P., India. *Ethnobotany.* 1993; 5:73-81.
6. Neog M, Mohan NK. Minor and less known fruits of Assam. *Indian Horticulture*, July-September 1994.
7. Samant SS, Dhar U. Diversity, endemism and economic potential of wild edible plants of Indian Himalaya. *International Journal of Sustainable Development and World Ecology.* 1997; 4:179-191
8. Sundriyal M. Distribution, Propagation and Nutritive value of some wild Edible Plants in the Sikkim Himalaya. Ph. D Thesis, High Altitude Physiology Research Centre, H N B Garwal University, Srinagar and G B Pant Institute of Himalayan Environment and Development, Sikkim Unit, Gangtok, 1999.
9. Wesche-Ebeling P, Maiti R, Garcia-Diaz G, Gonzalez DI, Sosa-Alvarado F. Contribution to the botany and nutritional value of some wild *Amaranthus* species (Amaranthaceae) of Nuevo Leon, Mexico. *Economic Botany.* 1995; 49:423-30.